Agent Communications Using Distributed Metaobjects

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Standard Agent Architecture II

- Multi-agent envrionment
- Flecible communications architecture
- Internet / WWW capable
- Multilingual agents
- Intrinsic agent authentication
- Models of other agents
- Programmable agents

Distributed Objects

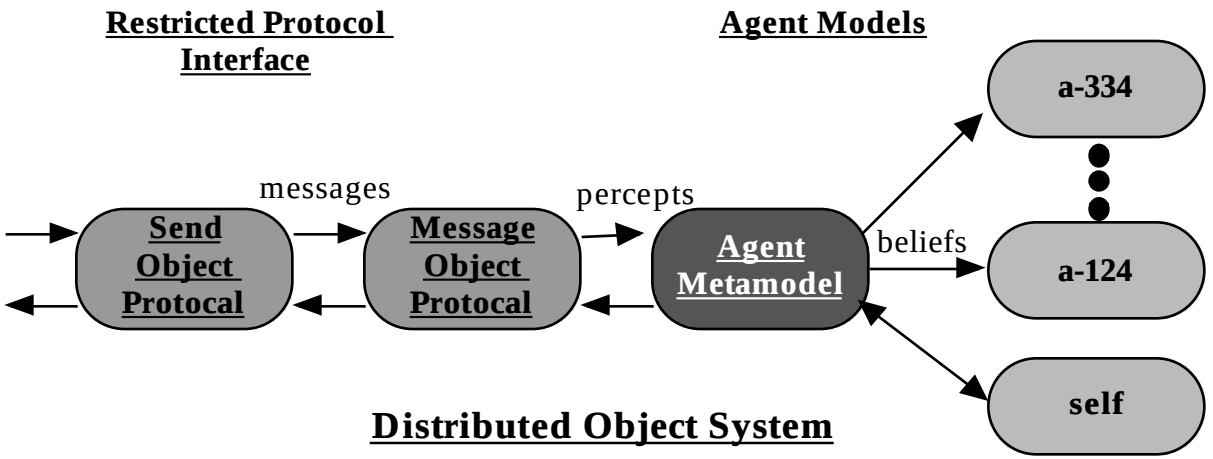
- Agnents trade objects to communicate
- Proxies, Replicants, & Copies of Instances
- Hybrids
- Metaobjects: Classes & Methods
- Push, Pull Protocol
- Synchronization of Objects
- Security issues for mobile objects

- Autonomy implies crititcism of input
- Stimulus autonomy: control perception
- Executive autonomy: control motivtion
- Integerty prevents “dircet intervention”
- Protect against arbitrary method invocation
- Identity enables assigniment to individuals
- Agents have location-independent identity

Distributed Object Communications

- Agent message is a distributed object
- Agent idnetity is an authenticated proxy
- Send-Object moves the object
- Message-Object receives the object
- Valid objects are routed to the agent model
- Agent model determines context / semantics

Distributed Object Subsystem



Agent Models

- Agents model other agents
- Identity established cryotpgraphically
- Models mediate communications
- Agents share model elements
- models represented as distributed objects
- Foeign models are isolated from agent

Sharing Ontologies

- Ontologies are sets of metaobjects
- Agents send ontologies to ther agents
- Metamodel mediates the use and update
- AGents reason with models of ther agents
- Taxonomies / description logice etc.
- Classes, metaclasses, & methods
- Distributed object issues apply

Conclusions

- Distributed objects are powerful mechanism
- DO enables flexible agnet communications
- Agent integrity can be preserved
- Models of agents as DO collection works
- Supports KQML, others